SOS Explorer Lite Content

Last modified on April 17, 2017

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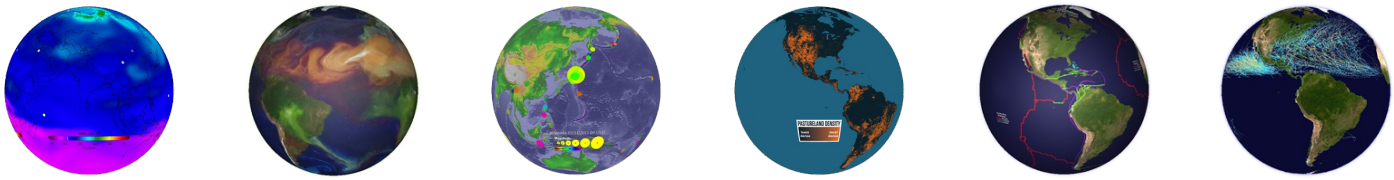
SOS Explorer Lite comes with a select collection of datasets, mostly from the Science On a Sphere data catalog. In addition, three educational tours have been crafted that weave many of the included datasets together to help users draw connections and better understand the science behind the datasets through learning goals.

Datasets Included



- SOSx Blue Marble (default dataset) – This view of Earth has many layers including:
  - Real-time Clouds (updates each time you open program) (temporarily (temporarily broken)
  - Real-time Day/Night Lighting (updates each time you open program)
  - Topography and Bathymetry
  - Land Vegetation (not Real-time)
- Age of the Seafloor
- Agriculture: Cropland/Pastureland Intensity
- Atmospheric Chemistry: GEOS-5 Model
- Biosphere: Marine Chlorophyll Concentration and Land Vegetation
- CarbonTracker 2005 – 2010
- Hurricane Sandy
- Hurricane Tracks: Cumulative – 1950 - 2005
- Layer – Earthquakes – 2011 (KML)
- Layer – Earthquakes – Realtime (KML) (temporarily broken)
- Layer – Geographic Overlay
  - Atmospheric Circulation
  - City Names
  - Country Names
  - Lat/Lon Grid
  - Land Mask
  - Ocean Currents
  - Ocean Names
  - Plate Boundaries (colorized)
  - Plate Boundaries (white)
  - Plate Names
  - Railroad
  - Rivers
  - Roads
  - Time Zones
- Layer – Satellites and Space Trash
- Layer – Volcanoes (KML)
- Nighttime Lights – 2012
- Sea Ice Concentrations – 1987 – 2013
- Sea Surface Currents and Temperature
- Surface Temperature

Explanation of Tours

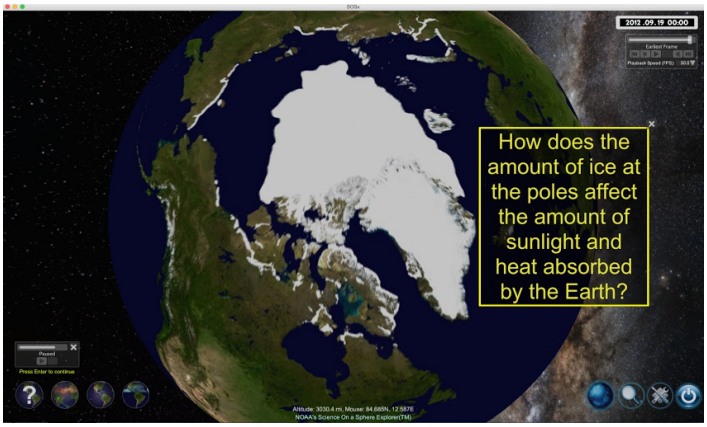
There are three educational tours and one help tour in SOS Explorer Lite that can be accessed by clicking the icons on the bottom left of SOSx screen.

Tours are scripted presentations that walk a user through the datasets using a storyline and a learning goal. These often include text, guiding questions, pop-up web content, videos, pictures/diagrams, and click-able place marks.

We imagine tours being used by teachers as direct presentations in the classroom and as learning modules – either to familiarize users with the application and the datasets or as direct learning modules for secondary students (6th – 12th grade).

Secondary student worksheets can be used when students are allowed to work through the tours on their own. The worksheets ask students to record answers to questions asked during tour along with deeper thought questions. Secondary student worksheets are included for each tour under Lessons and Extension Materials.

Earth System Tour



Learning Goal:

Visualize, understand and be able to explain how heat and sunlight are connected to each part of the Earth system – life, atmosphere, ice, rock and water.

Datasets:

- SOSx Blue Marble – This view of Earth has many layers including:
- Real-time Clouds (updates each time you open program), Real-time Day/Night Lighting (updates each time you open program), Topography and Bathymetry, Land Vegetation
- Sea Surface Currents and Temperature
- Atmospheric Chemistry: GEOS-5 Model
- Age of the Seafloor
- Volcano Locations (KML) – clickable for more information
- Biosphere: Marine Chlorophyll Concentration and Land Vegetation
- Sea Ice Concentrations – 1987 – 2013

Lessons and Extension Materials:

- Earth System Tour: Secondary Student Worksheet - Student-led - To complete while taking the tour (6-12th)
- Earth System Tour: Secondary Student Worksheet - Teacher version (with answers)
- GLOBE Earth System Poster Learning Activities (6-12th)
- Connect the Spheres: Earth Systems Interactions – NASA (K-8th)

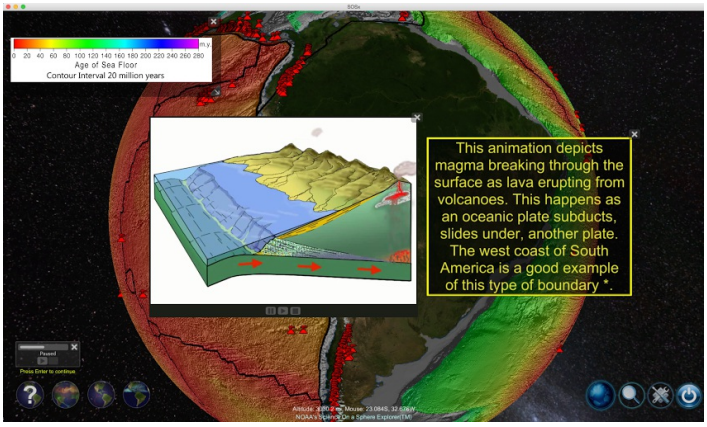
Plate Tectonics Tour

Learning Goal:

Visualize, understand and be able to explain how earthquakes and volcanoes are related and how the age of the seafloor can be explained by movement of Earth's tectonic plates over time.

Datasets:

- SOSx Blue Marble – This view of Earth has many layers including:
- Topography and Bathymetry, Land Vegetation
- Volcano Locations (KML) – clickable for more information
- Earthquakes – 2011 (KML) – clickable for more information
- Plate Boundaries – colorized for boundary types – Geographic Overlay
- Age of the Seafloor



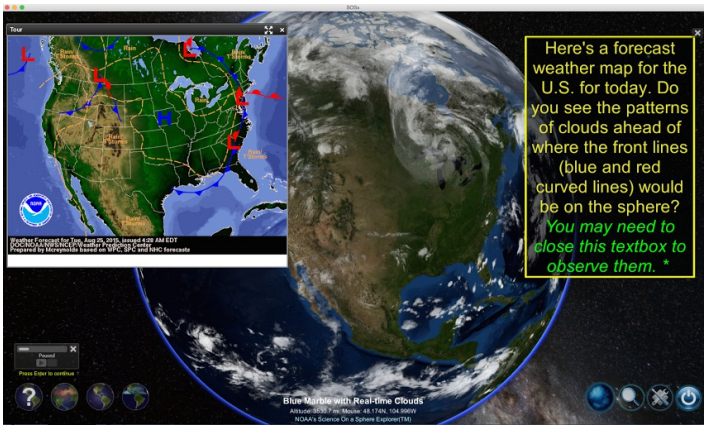
Lessons and Extension Materials:

- Plate Tectonics Tour: Secondary Student Worksheet - Student-led - To complete while taking the tour (5-10th)
- Plate Tectonics Tour: Secondary Student Worksheet - Teacher version (with answers)
- SOSx Plate Tectonics Lesson: Student-led - An alternative to the tour (5-10th)
- SOSx Plate Tectonics Lesson: Teacher version (with answers)
- Plate Tectonics animations – University of California
- Plate Tectonics Lessons – Geology.com

Wind and Weather Tour

Learning Goal:

Visualize, understand and be able to explain the basic concepts for what causes weather, wind, and ocean currents.



Datasets:

- SOSx Blue Marble – This view of Earth has many layers including:
- Real-time Clouds (updates each time you open program), Topography and Bathymetry, Land Vegetation
- Surface Temperature
- Latitude and Longitude - Geographic Overlay
- Hurricane Sandy
- Sea Surface Currents and Temperature
- Ocean Currents – Geographic Overlay
- Hurricane Tracks: Cumulative – 1950 - 2005

Lessons and Extension Materials:

- Weather Tour: Secondary Student Worksheet - Student-led - to complete while taking the tour (5-10th)
- Weather Tour: Secondary Student Worksheet - Teacher version (with answers)
- Weather Maps – Discovery Education (K-5th)
- Tracking Hurricanes – Lesson 3 of NOAA Teachers at Sea – Page 25 (5-8th)
- Twisting the Air Away – The Coriolis Effect - NOAA (9-12th)